

indicates a first minimum received power, RxP1, above which wireless devices in a first access network (e.g., BSS2 100-2 in this example) formed by the first access point (e.g., AP2 in this example) are allowed to contend for access to a communication medium during the period. The first access network has a first coverage area. In block 1020, the STA 140 measures power of transmission (e.g., beacon), RxP_AP1, from the first access point (AP2). In block 1030, the STA 140 receives from a second access point (e.g., AP1 in this example) a broadcast frame that indicates a second minimum received power, RxP2, above which wireless devices in a second access network are allowed to contend for access to a communication medium. The second access network (e.g., BSS1 100-1) is formed by the second access point and has a second coverage area that overlaps with the first coverage area.

[0068] In block 1040, the STA 140 measures power of transmission (e.g., beacon), RxP_AP2, from the second access point (e.g., AP1). In block 1050, the STA performs two comparisons. Specifically, it is determined if the minimum received power RxP1 indicated by AP2 is greater than the power of transmission of AP2 (illustrated as RxP_AP1) and if the minimum received power RxP2 indicated by AP1 is less than the power of transmission of AP1 (e.g., RxP_AP2). If so (block 1050=Yes), then the STA 140 in block 1060 contends for access to a communication medium during the period. If not (block 1050=No), then the STA 140 in block 1070 does not contend for access to the communication medium during the period. In practice, it is possible that there is an interference margin, so there may be one or more interference margins added in block 1055. For instance, the formula in block 1050 may be $RxP1 > RxP_AP1$ and $RxP2 < RxP_AP2 - \text{interference margin}$ or $RxP1 > RxP_AP1 - \text{interference margin}$ and $RxP2 < RxP_AP2$.

[0069] The above description has assumed both BSS are operating in the same operational mode, e.g., where both BSSs 100 use RAWs. However, it is also possible for one BSS (e.g., BSS1 100-1) to use RAWs, while the other BSS (e.g., BSS2 100-2) of the OBSS does not use RAWs. Thus, it is possible one BSS is operating in that RAW mode and the other is not, in which case the operating principles of the overlapping BSS should be respected. An exemplary idea is that a STA in BSS2 can re-use the channel if the STA does not cause significant interference to BSS1. This considers mostly uplink transmissions from the STA to the AP and assumes some form of channel reciprocity so the Rx threshold indicated by the AP is an indication of the desired coverage range of the AP for the scheduled group. Thus, if there are STAs outside the coverage range, these STAs could transmit to their AP.

[0070] Referring now to FIG. 11, FIG. 11 is a block diagram of an exemplary logic flow diagram performed by a station for solving exposed terminal problems and mitigating OBSS in densely deployed WLAN networks. This figure illustrates the operation of an exemplary method, a result of execution of computer program instructions embodied on a computer readable memory, and/or functions performed by logic implemented in hardware, in accordance with exemplary embodiments herein. The blocks in this figure may be assumed to be interconnected means for performing the functions.

[0071] In block 1110, at a wireless device (e.g., a STA 140) in a first access network (e.g., BSS2 100-2) formed by a first access point (e.g., AP2 130-2), receives from a second access

point (e.g., AP1 130-1) a broadcast frame that indicates a minimum received power, RxP2, above which wireless devices in a second access network (e.g., BSS1 100-1) formed by the second access point are allowed to contend for access to a communication medium. The first access network has a first coverage area and the second access network has a second coverage area that overlaps with the first coverage area. In block 1120, the STA 140 measures power of transmission (e.g., beacon), RxP_AP2, from the second access point (e.g., AP1). Assume, for instance, the measured power is -55 dBm. [0072] In block 1130, the STA compares RxP2 and RxP_AP2. Specifically, the STA 140 determines if the minimum received power, RxP2, is less than the power of transmission from AP1, RxP_AP2. If so (block 1130=Yes), the STA 140 in block 1140 contends for access to a communication medium. If not (block 1130=No), the STA 140 does not contend for access to the communication medium.

[0073] In practice, it is possible that there is an interference margin (see block 1135) so all STAs 140 in any Group 2x may be allowed to transmit if their receive power from AP1 is slightly lower than the minimum value indicated by AP1 for its own STAs, e.g., in the above example, $RxP_Group2x$ is less than -55 dBm—interference margin. As an example, if the interference margin is 10 dBm, then only STAs belonging to AP2 can simultaneously access the channel if a STA receives the beacon from AP1 at a power less than $-55 - 10 = -65$ dBm.

[0074] It is noted that, for FIGS. 10 and 11, the RxP1 and RxP2 may be thresholds indicated by respective AP2 and AP1 using, e.g., a Minimum RxP of Group field 720 in FIG. 7. Also, in FIG. 11, the AP2 is assumed to not divide STAs 140s into groups, although this is still possible.

[0075] It has been assumed above of symmetry in traffic direction, i.e., both STA1 and STA2 need to transmit in the uplink to AP1 and AP2, respectively. I think you have added a few lines as per our discussion. It should be noted that it is possible to take into account the restriction for instance. STA2 can take into account the transmission is from STA1 to AP1 (and not from AP1 to STA1 so STA2's OBSS measurements was with respect to AP1 and not STA1) when STA2 is reusing the channel which STA2 can infer from the RAW allocation. Basically, the received power comparisons are being done with respect to the intended recipient, which in this example is AP1 as the intended recipient for the transmission from STA1 so STA2 should not cause too much interference at AP1.

[0076] Transmission and reception may be performed herein using known techniques under IEEE standards such as IEEE 802.11 to 13 and the like.

[0077] Embodiments of the present invention may be implemented in software (executed by one or more processors), hardware (e.g., an application specific integrated circuit), or a combination of software and hardware. In an example embodiment, the software (e.g., application logic, an instruction set) is maintained on any one of various conventional computer-readable media. In the context of this document, a "computer-readable medium" may be any media or means that can contain, store, communicate, propagate or transport the instructions for use by or in connection with an instruction execution system, apparatus, or device, such as a computer, with one example of a computer described and depicted, e.g., in FIG. 2. A computer-readable medium may comprise a computer-readable storage medium (e.g., memory(ies) 255, 225 or other device) that may be any media or